Reforestation in the US: Trends and Implications

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Objectives

- Quantify reforestation trends in the United States over the past 10-20 years.
- Assess potential effects of US reforestation rates on the availability of pulpwood and woody biomass supplies.

- *Includes analysis of reforestation data, forest inventories/supplies and timberland ownership.*
Study Regions = FRA Regions

Five regions
- Western
- Lake States
- Appalachian
- Northeast
- South (SE + SC)
Methodology: collected data from 26 states, representing 64% of merchantable US forest inventory

- Aggregated planting data from USFS for 1951-99.
- Attempted to contact reps in 35 other states.

- Aggregated data by region where possible.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Merch (green tons)</th>
<th>Total Merch in States with Reforestation Data (green tons)</th>
<th>% Coverage by volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appalachian</td>
<td>7,043,337,216</td>
<td>2,400,106,594</td>
<td>34%</td>
</tr>
<tr>
<td>Lake States</td>
<td>2,714,649,352</td>
<td>1,590,688,012</td>
<td>58%</td>
</tr>
<tr>
<td>North East</td>
<td>3,307,983,318</td>
<td>1,673,472,658</td>
<td>51%</td>
</tr>
<tr>
<td>South</td>
<td>10,454,117,972</td>
<td>10,454,117,972</td>
<td>100%</td>
</tr>
<tr>
<td>West</td>
<td>10,839,646,366</td>
<td>6,006,728,346</td>
<td>53%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>34,359,731,224</strong></td>
<td><strong>22,114,973,582</strong></td>
<td><strong>64%</strong></td>
</tr>
</tbody>
</table>
Acres Planted on Private Timberlands 1951-1999; Source: USFS
Acres Planted on Public Timberlands
1951-1999; Source: USFS
Reforestation methods and approaches vary across regions.

- Natural regeneration prevalent in Northeast, Appalachian and Lake States.
South relies on artificial regeneration; nursery seedling production proxies acres replanted.

Source: Auburn Southern Forest Nursery Management Cooperative. Includes Southern nursery seedling production (including TN) and seedling sales for CRP program in KS. Seedlings divided by 450 TPA.
How could economic downturn, and decline in reforestation, affect biomass supplies (pulpwood-sized materials)?

- **Key factors:**
  - Harvesting type
  - Reforestation activity
  - Types of potential raw material supplies

- **Key relationships and assumptions:**
  - Reforestation linked to final harvests.
    - Less planting could be reduced wood flows or harvesting; at minimum, it’s a shift in harvest type.
  - Clearcuts provide two raw materials for pulpwood users: roundwood & mill residuals.
    - Falling pulpwood flows can be partially offset by residual chip production.
Observations based on timberland acres and biomass supplies over time

- Total timberland acres increased from 466 million in 1987 to 513 million in 2007.
- Most reforestation in South & West.
- More softwood biomass growing today than ever in past 10-20 years.
As pulpwood “leader”, US South most exposed to potential impacts on supplies from reduced reforestation.

- Impacts flow from two potential threats:
  1. Fewer clearcut harvests and resulting fewer acres replanted to grow into pulpwood; and
  2. Increased thinning activity, which reduces future pulpwood supplies from clearcuts.

- Between 2000 and 2008, US South decreased seedling production by 24% and final harvests decreased from 53% to 43% of all harvests.
However, from 2006-2010, residual chip flows fell 10+ million tons/year in South (Source: *Wood Demand Report*).

- Increased demand for sawtimber replenishes residual chip supplies.
  - Also provides incentive to increase residual chips from chip-n-saw manufacturers.

- Regional analysis “averages out” potential pulpwood constraints in any given wood basin.
  - In practice, wood procurement is a local operation.
We appreciate the support of WSRI and its members, and our fellow researchers at UGA’s Center for Forest Business.